

## **Analysis of Factors Affecting the Number of Infant and Maternal Mortality in East Java with Geographically Weighted Bivariate Generalized Poisson Regression Method**

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**Abstract :** Poisson regression is a non-linear regression model with response variable in the form of count data that follows Poisson distribution. Modeling for a pair of count data that show high correlation can be analyzed by Poisson Bivariate Regression. Data, the number of infant mortality and maternal mortality, are count data that can be analyzed by Poisson Bivariate Regression. The Poisson regression assumption is an equidispersion where the mean and variance values are equal. However, the actual count data has a variance value which can be greater or less than the mean value (overdispersion and underdispersion). Violations of this assumption can be overcome by applying Generalized Poisson Regression. Characteristics of each regency can affect the number of cases occurred. This issue can be overcome by spatial analysis called geographically weighted regression. This study analyzes the number of infant mortality and maternal mortality based on conditions in East Java in 2016 using Geographically Weighted Bivariate Generalized Poisson Regression (GWBGPR) method. Modeling is done with adaptive bisquare Kernel weighting which produces 3 regency groups based on infant mortality rate and 5 regency groups based on maternal mortality rate. Variables that significantly influence the number of infant and maternal mortality are the percentages of pregnant women visit health workers at least 4 times during pregnancy, pregnant women get Fe3 tablets, obstetric complication handled, clean household and healthy behavior, and married women with the first marriage age under 18 years.

**Keywords :** adaptive bisquare kernel, GWBGPR, infant mortality, maternal mortality, overdispersion

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